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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,105	01/05/2004	Harald Jacobsson	4127-12	1349

23117 7590 09/03/2004

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EXAMINER	
CHANG, JOSEPH	
ART UNIT	**PAPER NUMBER**
2817	

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,105	JACOBSSON ET AL.	
	Examiner	Art Unit	
	Joseph Chang	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-7,30 and 32* is/are rejected.

7)☒ Claim(s) *2-4,8-29 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/5/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: OSCILLATOR CIRCUIT FOR LOCKING TWO OR MORE LC-OSCILLATORS BY MUTUAL INDUCTANCE COUPLING

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7, 30, 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Rozenblit et al. US 6249190.

Rozenblit et al. discloses in figures 4 and 9 an oscillator circuit (120) comprising a first LC-oscillator (left side (122 142 140, 126, 132, 136, 128)) and a second LC-oscillator, (right side (144,162,160,148,154,158,152)) the first LC-oscillator (left side) comprising a resonance inductor (128), the second LC-oscillator comprising a resonance inductor (152), the first LC-oscillator and the second LC-oscillator having substantially the same fundamental frequencies (Col. 6, line 41-42; Col.5, lines 44-45, Col. 4, line 46 the right side is a mirror image of the left side), characterized in that the resonance inductor (128) of the first LC-oscillator (left side) is coupled by mutual inductance (164 of Figure 4 and see Col.6, line 51-52) to the resonance inductor (152)

of the second LC-oscillator (right side), to thereby enable the first LC-oscillator and the second LC-oscillator to frequency lock to each other (it is inherent because the circuit produces precisely 180 degrees out of phase. Col.6, lines 51-54; and see also Col. 8, lines 2-4 for different embodiment supporting inherency)

Regarding Claim 5, Rozenblit et al. discloses that the mutual inductance coupling between the resonance inductors (128, 152) of the LC-oscillators (left and right) is achieved by at least partly intertwining the inductor windings of the respective resonance inductors which are inductively coupled by mutual inductance. (Col.6, lines 51-52 "the pair of inductors 128, 152 forms a cross-coupled transformer").

Regarding Claim 6, Rozenblit et al. discloses that the LC-oscillators have substantially identical circuitry (the right side is a mirror image of the left side, Col. 4, line 46).

Regarding Claim 7, Rozenblit et al. discloses that a fundamental frequency of the LC-oscillators (a fundament frequency of left and right is produced by the LC resonant frequency) is substantially a same frequency for all of the LC-oscillators (there are no other LC-oscillators except the first and second LC-oscillators)(the scope of this claim is substantially the same as the scope of Claim 1).

Regarding Claim 30, Figure 9 shows a communication unit comprising an oscillator as recited in Claim1.

Regarding Claim 31, Figure 4 shows an oscillator (120), which would necessarily perform the method, locking a first LC-oscillator (left side) to a second LC-oscillator (right side) coupling by mutual inductance (a form of cross coupling transformer) a

resonance inductor (128) of the first LC-oscillator (left side) with a resonance inductor (152) of the second LC-oscillator (right side).

Allowable Subject Matter

Claims 2-4, 8-29, 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Rozenblit et al., taken alone or in combination of other references, does not teach or fairly suggest a third LC-oscillator (Claims 2-3) or further LC-oscillators (Claim 4), or differential LC-oscillators (Claims 8-29 and 31).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gierkink et al. discloses a quadrature VCO using inductive coupling.

Ghoshal discloses a quadrature oscillator using inductive feedback coupling for tuning center frequency.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph Chang
Patent Examiner
Art Unit 2817